

REMARKS/ARGUMENTS

Claims 39, 45-49, 52-54, 57-62, 64-75, and 77-78 are pending in this application, with claims 39 and 67 being the only independent claims. Claims 39, 49, 67, and 70 have been amended. No new matter has been added. Reconsideration of the above-identified application, as herein amended and in view of the following remarks, is respectfully requested.

Claims 39, 49 and 65 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Pat. No. 5,640,957 ("Kaminski").

Claims 52-54 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski, and further in view of U.S. Pat. No. 6,348,694 ("Gersthteyn"). Claim 61 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski, and further in view of U.S. Pub. No. 2002/0052562 ("Lipman"). Claim 66 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski, and further in view of U.S. Pat. No. 4,882,598 ("Wulf"). Claims 77, 45, 46 and 48 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski. Claim 47 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski, and further in view of U.S. Pat. No. 6,529,543 ("Anderson"). Claim 55, 57-59 and 64 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski in view of Gershteyn, and further in view of U.S. Pat. No. 5,807,261 ("Benaron"). Claim 60 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski in view of Gershteyn, and further in view of U.S. Pat. No. 6,736,832 ("Lenderink"). Claims 67-68, 70-74 and 78 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski in view of "Genetic Analysis of Ultraviolet Radition-induced Skin Hyperplasia and neoplasia in a Laboratory Marsupai Model (Monodelphis Domestica)", 1994 ("VandeBerg"). Claim 69 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski in view of VandeBerg, and further in view of U.S. Patent No. 4,843,279 ("Rattray").

Claim 75 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski in view of VandeBerg, and further in view of U.S. Pub. No. 2002/0183811 ("Irwin").

As described in more detail below, the apparatus and method of the present invention is fundamentally different from the subject matter disclosed by Kaminski. Namely, the present invention determines an allowed UV exposure time or an allowed UV radiation dose from only a measurement of diffused reflected radiation or only a single mean value of several measurements of diffused reflected radiation. In contrast, Kaminski requires a comparison of measurements from treated and untreated skin to determine a protection factor for a sunscreen.

Before discussing the cited prior art and the Examiner's rejections of the claims in view of that art, a brief description of the subject matter described in the present application is deemed appropriate to facilitate understanding of the arguments for patentability. The description is not meant to argue unclaimed subject matter.

According to the present invention, a UV emitter is a diode that emits UV radiation to locally irradiate human skin (see para. 21 of the application as originally filed). The UV radiation is selected to be a specific wavelength at which the absorption coefficient and the scattering coefficient are equal. This wavelength allows UV-sensitive skin to be distinguished from less sensitive skin (see para. 28 of the application as originally filed). An evaluation unit determines radiation absorption based on the diffusely deflected radiation received by the UV sensor (see para. 66 of the application as originally filed). An individual measurement of the absorption may be used to obtain a UV radiation threshold value (see para. 68 of the application as originally filed). As an alternative, a mean value of several individual measurements may be calculated so that a threshold value can be assigned to an average value (see para. 69 of the application as originally filed). For

example, a processing unit computes a mean value of several measurements and assigns a threshold dose to this mean value (see para. 74 of the application as originally filed).

Independent claim 39 has been amended to recite “a processor unit coupled with the evaluation unit and configured to determine one of a single measurement value of the diffusely reflected UV radiation received by the UV sensor and a single mean value of a plurality of measurements values of the diffusely reflected UV radiation received by the UV sensor, each measurement value corresponds to a degree of diffuse reflection between 0% and 100% of the emitted radiation, the processor unit being further configured to assign a threshold dose to the one of the single measurement value and the single mean value, wherein the threshold dose provides the allowable UV exposure time or allowable UV radiation dose for the human skin.” Support for the amendments are found, for example, in previous claim 49 and paragraphs 23, 68, 69, and 74 of the application as originally filed.

Kaminski fails to disclose the above limitations because Kaminski does not determine a threshold dose based on a measurement value. In contrast, Kaminski determines a sun protection factor of a sunscreen, which is not a threshold dose.

Kaminski discloses an ultraviolet radiation protection evaluator for evaluating the effectiveness of sunscreens (see col. 1, lines 8-12 of Kaminski). A probe 18 is used to deliver UV light to the skin and to measure diffused light returned from the skin (see col. 2, lines 16-21 and col. 3, line 49 to col. 4, line 15). Measurements are made for treated and untreated skin and the effectiveness of the sunscreen is based on the difference (see col. 2, lines 22-29 and col. 4, lines 55-65 of Kaminski). Since Kaminski compares a measured value of untreated skin to a measured value of treated skin, Kaminski fails to teach or suggest “the processor unit being further configured to assign a threshold dose to the one of the single measurement value and the single mean value,

wherein the threshold dose provides the allowable UV exposure time or allowable UV radiation dose for the human skin”, as recited in independent claim 39.

Accordingly, independent claim 39 is allowable over Kaminski.

Independent claim 67 is amended to include limitations similar to the limitations of independent claim 39 and is allowable over Kaminski for the same reasons as is independent claim 39. VandeBerg fails to cure the deficiency of Kaminski. VandeBerg discloses an analysis of ultraviolet radiation-induced skin hyperplasia and neoplasia. According to VandeBerg, subjects (laboratory marsupials) were repeatedly exposed to UV radiation and the skin was visually evaluated for lesions. Accordingly, VandeBerg fails to teach or suggest “determining one of a single measurement value of diffusely reflected UV radiation received by a UV sensor and a single mean value of a plurality of measurement values of the diffusely reflected UV radiation received by the UV sensor” and “assigning a UV radiation threshold value of the human skin based on the the one of the single measurement value and the single means value to provide an allowable UV exposure time or allowable UV radiation dose for the human skin”, as expressly recited in now-amended independent claim 67. Accordingly, the combination of Kaminski and VandeBerg fails to teach or suggest the method of now-amended independent claim 67, because VandeBerg fails to provide that which Kaminski lacks.

Independent claim 67 is therefore not rendered obvious and unpatentable by the combination of Kaminski and VandeBerg.

The combination of Kaminski, VandeBerg, Gersthiteyn, Lipman, Wulf, Anderson, Benaron, Lenderink, Rattray and/or Irwin fails to disclose the limitations of independent claim 39 and 67, absent an impermissible hindsight construction based on applicants’ instant disclosure.

Gersthiteyn relates to "methods and apparatus for determining an ability of a region of skin to withstand exposure to harmful radiation" (see col. 3, lines 61-63). Lipman relates to a "Comprehensive Pain Assessment System of the present invention includes a non-contact heat beam dolorimeter and methods for objective pain tolerance assessment" (see paragraph [0029]). Wulf relates to "a method ... [for determining] ... an individual's ability to stand exposure to ultraviolet radiation prior to causing a skin reaction, such as skin cancer or erythema, or to determine an individual's ability to become tanned by exposure to ultraviolet radiation" (see col. 1, lines 55-59). Anderson relates to "systems and tools for controlling the optical penetration depth of laser energy, e.g., when delivering laser energy to target tissue in a patient" (see col. 1, lines 48-50). Benaron relates to "surgical tools and instruments capable of non-destructive interrogation of body tissues during surgical and/or diagnostic procedures" (see col. 1, lines 26-29). Lenderink relates to "a measuring device 1 capable of carrying out a non-invasive measurement 2 on skin 3, correlated to the MED" (minimum erythema dose) (see col. 3, lines 61-63). Rattray relates to "an improved suntanning fluorescent lamp which generates both UVA and UVB radiation" (see col. 2, lines 10-12). Irwin relates to "an apparatus for treating diseased skin with ultraviolet (UV) light" (see paragraph [0009]).

Gersthiteyn, Lipman, Wulf, Anderson, Benaron, Lenderink, Rattray and/or Irwin, however, fail to teach or suggest the above limitations of independent claim 39 and 67. Independent claims 39 and 67 are therefore not rendered obvious and unpatentable by the combination of Kaminski, VandeBerg, Gersthiteyn, Lipman, Wulf, Anderson, Benaron, Lenderink, Rattray and Irwin.

In view of the foregoing, the reconsideration and withdrawal of all the rejection under 35 U.S.C. §103 is requested, and notice to that effect is earnestly solicited.

Dependent claims 45-49, 52-54, 57-62, 64-66, 68-75, and 77-78 are allowable for the same reasons as are independent claims 39 and 67, as well as for the additional limitations contained therein.

Based on the foregoing amendments and remarks, this application is in condition for allowance. Early passage of this case to issue is respectfully requested.

Should the Examiner have any comments, questions, suggestions, or objections, the Examiner is respectfully requested to telephone the undersigned in order to facilitate reaching a resolution of any outstanding issues.

Respectfully submitted,
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